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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BAHTA, KIDEST	

ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/704,260	BASSETT, LONNIE	
	Examiner	Art Unit	
	Kidest Bahta	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bearden et al. (U.S. Patent 6,167,965) in view of Tubel et al. (U.S. Patent 6,268,911).

Regarding claims 1 and 15, Bearden discloses a down hole pumping system (Fig. 1A- Fig. 1L), comprises: pump (Fig. 1A, element 11); fluid outlet line (Fig. 1A, element 43) connected to the pump (Fig. 1A; column 5, lines 34-43); a motor (Fig. 1L, element 17) connected to the pump (Fig. 1L, element 11); at least one sensor (column 7, lines 62-63) disposed and configured to collect operating variable information (column 7, line 58 to column 8, lines 42); a flow controller (Fig. 1A, element 27; i.e., a check valve) disposed in the fluid outlet line (Fig. 1A), control unit (Fig. 1M, element 411) couple to the sensor (Fig. 1M, elements 401 and 403) and configured to control operation of the flow controller in response to input received from the at least one sensor to determine an operating variable value (column 9, line 37- column 10, line 11); compare the operating variable value with a target value and than selectively issue a control signal to the flow controller (column 11, line 15 to column 13, line 51).

However, Bearden fails to disclose a feedback system comprising a flow controller disposed in the fluid line and a control unit. Tubel discloses that a feedback

system (Fig. 5), comprising a flow controller disposed in the fluid line and a control unit (column 12, line 8, column 13, line 12).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify the teaching of Bearden with the teaching of Tubel since pump efficiency for the improved down hole applications is controlled, monitored and dangerous operating conditions for the improved down hole applications is monitored and avoided.

Regarding claim 2, Bearden discloses at least one sensor is disposed on the down hole pumping system (Fig. 1L, elements 171, 173 and 175; column 7, lines 62-63)).

Regarding claim 3, Bearden discloses the at least one sensor comprises at least one of a pressure sensor (Fig. 1L, elements 173 and 197) and a flow meter (Fig. 1L, elements 203) disposed in the fluid line (column 8, lines 57-58).

Regarding claim 4, Bearden discloses the at least one sensor comprises a pressure sensor disposed at an upper end of the pump (Fig. 1L, element 201).

Regarding claim 5, Bearden discloses the flow controller is gate style pressure valve (column 5, lines 54-55; Fig. 1A, element 27).

Regarding claims 6, 11 and 14, Bearden discloses the control unit is coupled to the down hole pumping system and is configured to control the operation of the down hole pumping system in response to the operating variable information (column 11, lines 15-51).

Regarding claim 7, Bearden discloses the at least one sensor comprises a first pressure sensor disposes in the flow line (Fig. 1L, elements 202) and a second

pressure sensor disposed at an upper end of the pump (Fig. 1L; elements 201 and 203).

Regarding claim 8, Bearden discloses the operation variable is selected from at least one of a pressure value (Fig. 2A) and flow rate value (Fig. 2J and Fig. 2k) and wherein the processing system is configured to selectively issue a control signal to the flow controller according to a comparison between the operating variable information and one or more target value (column 12, line 56 to column 13, line 51; column 17, lines 38).

Regarding claim 9, Bearden discloses the processing system is configured with timer values that define a delay period before the control signal is issued (column 10, lines 13-22).

Regarding claims 10, 13, 17, and 23, Bearden discloses the at least one sensor and motor sensor is configured to collect operating variable information comprising at least one of a current value, a voltage value and a load value (Fig. 1L, elements 179 and 181; column 7, line 57 to column 8, line 18; Fig. 2N - Fig. 2O).

Regarding claim 12, Bearden discloses the pumping system comprises a motor (Fig. 1L, element 17) coupled to the pump (Fig. 1L, element 11).

Regarding claims 16 and 20-21, Bearden discloses selectively issuing the control signal to the flow controller comprises issuing the control signal if the operating variable value is different from the target value (column 12, lines 24-55); the at least one sensor comprises a motor operations sensor and wherein comparing the operating variable value with the target value determines where an adverse motor operating condition

exists (column 22, lines 25-57), if the adverse motor operating condition exist, the control unit is configured to issue a motor halt signal if the adverse motor operating condition persists for a predetermined period of time after the control signal is issued (column 12, line 56 to column 13, line 51; column 15, lines 5-39; column 36, lines 19-35, Fig. 2A; Fig. 2X- Fig. 2DD).

Regarding claims 18-19, Bearden discloses a surface pressure sensor disposable in the fluid outlet line (column 5, lines 34-43); and a well bore pressure sensor disposable in the well bore (column 8, lines 11-42); the at least one sensor comprises a surface pressure sensor and a well bore pressure sensor disposable downstream from the flow controller (Fig. 1A; column 5, lines 34-43).

Regarding claim 22, Bearden discloses the at least one sensor comprises a motor sensor (column 7, lines 58 – column 8, line 11).

Regarding claims 24-25, Bearden discloses the control unit is configured to control and to halt the operation of the down hole pumping system in response to the operating information (column 9, line 23 - column 10, line 11).

3. Claims 26-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bearden et al. (U.S. Patent 6,167,965).

Regarding claims 26, 34 and 44, Bearden discloses a processor (Fig. 4E, element 1070); memory (Fig. 1M, element 417) containing a sensor program which, when executed by the processor performs (column 9, lines 37-58) a method comprising: receiving a signal from at least one sensor configured to collect operating information from a down hole pumping system (Fig. 1L - Fig. 2B; Fig. 2D - Fig. 2G; Fig. 2P - Fig.

2DD; column 8, line 1- column 9, line 36); comparing the operating variable value (monitoring value) with a predetermined target value (required value) contained in the memory (Figs., 2A, 2B, 2D, 2P, 2Q, 2X- 2Z, 2AA, 2BB, 2DD and 3Q; column 12, line 56 - column 13, line 24; column 15, lines 10-39; i.e.; compared to one or more intake pressure thresholds which have been recorded in memory and compare the actual flow rate with one or more desired flow rates); outputting a flow control to a flow controller (Fig. 1M and column 13, lines 25-50, i.e., controller 144 may also control pump flow rates, as is depicted in flowchart form in Fig. 2B. the process being at software block 229, and continues to software block 231, wherein controller 411 receives sensor data from flow meters which provide a continuous or intermittent measure of the amount of fluid flowing from the electrical submersible pump).

However, Bearden fails to specifically disclose that if a different between the operation variable value and the predetermined target value *is greater than a threshold value*..

Bearden discloses the controller (411) compare the actual monitoring value to the required value in order to determine whether the threshold or thresholds have been violated (Fig. 2A, steps 215 and 217; Fig. 2B, steps 233 and 235; i.e., compare actual flow rate with desired flow rate; is/are desire flow rates met?); ***if*** the value of the threshold *have not been violated* (Fig. 2A, step 213 and Fig. 2B, step 231; i.e., continuing the monitoring operation of flow rate); if the value of the thresholds *have been violated* (Fig. 2A, steps 219-225; Fig. 2B, steps 237-243, i.e.; controller (411) is utilized to alter one or more operation condition as per program instructions).

Therefore, it is clear that by violating a threshold, the difference between the operation value (monitor or actual value) and predetermined target value (desired value), would be either greater or less than the threshold value (column 12, line 56 – column 13, lines 43).

It would have been obvious to a person of ordinary skill in the art at the time was the invention made to have used the method of Bearden because it would provide an optimal operation range for the pump and controller. Furthermore, it could be utilized to continuously monitor and control the efficiency of operation of the pump.

Regarding claims 27 and 35, Bearden discloses the threshold value is whether violated or not and compare the threshold value with the target value ((column 12, line 56 – column 13, lines 43).

Bearden fails to specifically disclose the threshold value is zero.

However, to compare the threshold value with the operation variable value, the threshold value has to have a constant or defined number. Therefore, it would have been obvious to a person of ordinary skill in the art to select different defined threshold value because by providing a specific value it would be easier to detect the violation or operation condition.

Regarding claims 28-30, Bearden discloses the at least one sensor comprises at least one pressure sensor (Fig. 1L, elements 173, 185,197) and motor operation sensor (Fig. 1L, element 17); the at least one sensor comprises at least one pressure sensor disposed in a fluid outlet line couple to the down hole pumping system and having the

flow controller disposed therein (column 7, lines 57- column 8, line 18, Fig. 3A- Fig. 3Dfig. 4B).

Regarding claims 31 and 41, Bearden discloses the at least one sensor comprises a fluid pressure sensor and motor sensor configured to collect operating information comprising at least one of a current value, a voltage value and load value from a pump motor (column 8, lines 4-18; Fig. 2N and Fig. 2O).

Regarding claims 32 and 33, Bearden discloses the at least one sensor comprises a motor operation sensor and wherein comparing the operating variable value with the target value determines whether an adverse motor operation condition exists, if the adverse motor operating condition exists, the processor is configure to issue a motor halt signal, if the adverse motor operating condition persists for predetermined period of time after the control signal is issued (column 12, line 56 to column 13, line 51; column 15, lines 5-39; column 36, lines 19-35, Fig. 2A).

Regarding claim 36, Bearden discloses the sensor is submersed in a fluid contained in the well bore (1A, column 5, lines 34-43).

Regarding claim 37, Bearden discloses the sensor and flow controller are disposed in a fluid line (Fig. 1M).

Regarding claims 38 and 39, Bearden discloses the operating variable value is indicative of head pressure of fluid contained in the well bore and receiving the flow control signal at the flow controller and adjusting the flow rate of well bore fluid through a flow line (column 8, lines 19-42).

Regarding claim 40, Bearden discloses the down hole pumping system comprises a pump and a pump motor and wherein the sensor is a motor sensor (column 7, line 58- column 8, line 11, Fig, 1L).

Regarding claims 42 and 43, Bearden discloses adjusting the operation of the motor comprises halting the motor (column 10, lines 35-55).

Response to Arguments

4. Applicant's arguments filed 6/17/2004 have been fully considered but they are not persuasive.

5. Regarding claims 1 and 15, applicant argues that Bearden or Tubel do not teach or disclose a feedback system comprising a pump, a flow controller disposed in the fluid line and a control unit and a control unit coupled to the sensor and configured to control operation of the flow controller in response to input received from the at least one sensor.

However, examiner disagrees because Bearden discloses that a feedback system (column 15, lines 27-30 and column 38, lines 10-28; i.e., ... radio feedback from the down hole tools to the surface location or subsurface...) comprising a pump (element 11); a control unit (element 411) and a control unit coupled to the sensor (element 401 and 403) and configured to control operation of the flow controller in response to input received from the at least one sensor (column 9, lines 37-column 10, line 11; column 13, lines 25-50; column 33, line 50-column 34, line15; i.e., wherein controller 411 receives sensor data from flow meters which provide a continuous or intermittent measure of the amount of fluid flowing from the electrical submersible

pump). In addition, Tubel discloses feedback system (Fig. 5) and a flow controller (Fig. 13, element 904, ...fluid flow control device) disposed in the fluid line (Fig. 13, element 922, 901 and 910; column 18, lines 25-26; column 14, lines 21-31);

Regarding claims 26, 34 and 44 applicant argues Bearden fails to disclose that outputting a flow control to a flow controller. However examiner disagrees since Bearden discloses that outputting a flow control to a flow controller (Fig. 1M and column 13, lines 25-50, i.e., controller 144 may also control pump flow rates, as is depicted in flowchart form in Fig. 2B. the process being at software block 229, and continues to software block 231, wherein controller 411 receives sensor data from flow meters which provide a continuous or intermittent measure of the amount of fluid flowing from the electrical submersible pump).

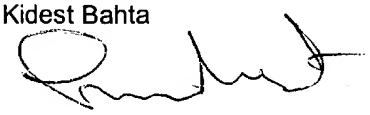
In response to applicant's argument that neither Bearden nor Tuble contain a motivation to combine and each reference teaches away from combination with other, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

6. Any inquiry concerning communication or earlier communication from the examiner should be directed to Kidest Bahta, whose telephone number is (703) 308-

6103. The examiner can normally be reached on M-F from 7:30 a.m. to 4:00 p.m. If attempts to reach the examiner by phone fail, the examiner's supervisor, Leo Picard, can be reached (703) 308-0538. Additionally, the fax phone for Art Unit 2125 is (703) 308-6306 or 308-6296. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist at (703) 305-9600.

Kidest Bahta



September 28, 2004